

REMARKS

Applicant thanks the Examiner and Primary Examiner Tan Dinh for granting the undersigned an interview on June 23, 2004. This Amendment follows up on that interview. The foregoing amendments in independent claims 6 and 9 define the invention to address the comments of the Examiners. Specifically, the phrase "adjacent said first track area" suggested by the Examiner has been added to make it clear that the first and second tracks are not only lands, but also adjacent lands. These claims therefore distinguish more clearly over the prior art reference to Ogata et al. where tracks are formed principally in grooves, but no two adjacent lands constitute adjacent track areas.

The Invention as Claimed

Claims 6-9 now pending define an optical recording medium constructed so that, using one light beam, it is possible to determine ("judge") which of two track areas, one at an inner radius of an intermediate groove and one at an outer radius of the groove, is selected for reading or recording. This judging is independent of the depth of the groove between the lands, the wavelength of the light, the recorded information, or whether information is being read or recorded on a given land.

These advantages are produced using judging areas 12 as shown in Fig. 8. In these judging areas 12, the tracks are formed as shown in Figs. 7(a), 9(a) or 10(a). These track constructions all include an "outer radius" land L1 and "inner radius" land L2 separated by a wobbled groove G1. DC (non-wobbled) grooves G2 sandwich (radially) the lands L1 and L2. Information is recorded and reproduced into/from lands L1 and L2.

Using only these physical characteristics of the recording medium, independent of the depth of the groove, one can determine whether the selected track is the land L1 or L2 at the outer or inner radius of the groove G1.

This recording medium construction, when interrogated by a single light beam, and the light-medium interaction detected as described in the specification, produces a

first (difference) wobble signal and second (same) wobble signal. When the light beam is on the track area defined by land L1 (as MB1 in Fig. 7(a)), the first and second wobble signals produced by the recording medium constructions defined by claims 6-9 produce the outputs shown in Fig. 7(b) and 7(c). When the light beam is on the track area defined by land L2 (e.g. beam spot MB2 in Fig. 7(a)), the first and second wobble signals produced by the recording medium construction defined by claims 6-9 produce the outputs shown in Figs. 7(d) and 7(e). The outputs in Figs. 7(b) and 7(c) are in phase with one another. The outputs in Fig. 7(d) and 7(e) are out of phase with one another. This difference in "wobbling polarity", being in phase or out of phase, identifies whether one is a land L1 or land L2. This land/groove/judging area construction is new; the related mode of operation using wobble polarities to determine the track is new.

The Prior Art Reference to Ogata et al. Distinguished

Applicant respectfully traverses the rejection of claims 6-9 under 35 USC 102(a) as anticipated by Ogata et al. U.S. Patent No. 5,940,364. Ogata et al. '364 describes a hybrid recording medium with a spiral track 5 formed by a guide groove 3 and a guide "space" 4. The groove 3 contains a guide pit array 3b of pits 9a and spaces 9b that records information that is reproduced. If information is to be recorded, the recording is performed in a "data recordable area 20 composed of the groove spaces 4." (Col. 9, lines 17-18) These features are shown in Ogata et al. '364, Figs. 1(a) and 1(b). The Ogata '364 guide groove 3 has a wobbled side wall 8a and a continuous, non-wobbled side wall 8b.

This Ogata et al. construction is not the presently claimed construction, nor does it operate in the same way. The difference can perhaps be seen most clearly by comparing Ogata et al. '364, Fig. 1a with Fig. 7(a) of the present application. If one equates two adjacent "groove space" areas 4, 20 of Ogata et al. '364 with applicant's land L1 and L2, then the intermediate guide groove 3 corresponds to either applicant's groove G1 or G2. In either case, applicant uses a groove where the land walls defining the groove parallel one another. They either wobble in unison, or are both smooth-walled. In sharp contrast, the guide groove 3 always has one wobbled wall 8a and one smooth wall 8b.

This difference in construction is important, and it is reflected in the pending claims. Claim 6, for example, recites that there is a "first track area", e.g. land L2 in Fig. 7(a), illuminated by spot MB2 "where one side wall, [e.g., the outer radius side wall of land L2] has a land wobbled." Clearly, the land wall at groove G1 is wobbled in Fig. 7(a). There is also a "second track area", here land L1 illuminated by beam spot MB1 in Fig. 7(a), "where the other side wall", here the inner radius wall of land L1, is defined by a "land [L1] wobbled".

The claimed invention further specifies that the recording medium with these land and groove features, has, as stated in claim 6, an "adjusting area" that shows "a correspondence of a wobbling polarity to a track area". As described above, with respect to Figs. 7(b)-7(e), the claimed land and groove structure of the present invention in an adjusting region, in itself, not encoded information in a track, provides the polarity-to-track area correspondence.

The Ogata et al. recording medium cannot and does not operate to provide this correspondence, using wobbling polarity, whether in any particular area of the recording medium, or not. The Examiner cites Fig. 14, areas 201, 202 as showing the claimed "adjusting area". However, Ogata et al. '364 says that the area 201 has recorded information in the grooves 3, but not in the outer area 202 where the grooves are "continuous" (Col. 14, lines 5-8). The wobbling "amount" varies between the areas 201, 202 (Col. 14, lines 28-33), but however generated and in whatever amount, the wobble signal is used only for synchronization (Col. 14, lines 22-24).

The Ogata et al. passage cited by the Examiner at Col. 21, lines 1-26, teaches one to use a controller 78 and its output control signal 78a to control "tracking polarity" and "whether the light beam should follow the guiding grooves 3 or groove spaces 4 on the optical disk 1."

Applicant neither uses nor claims any such controller signal to direct the light beam. Rather, the claimed invention teaches the use of the claimed recording medium construction to produce, when illuminated and operated, a wobble polarity that produces the desired identifying correspondence with a track area. Put in other words,

Ogata et al. does not teach or suggest determining the track area being wobbled by using a wobbling polarity adjustment.

The Examiner also cites Col. 15, lines 57-67, discussing a "lead-in area 211" and a "lead-out area 212" as teaching applicant's judging area. However, Ogata et al. teaches that these operate by providing recorded information, including information in the form of a pit array, that can be read. However, there is no teaching of the wobbled land and groove construction in this area as shown in Fig. 7(a) produces the mode of operation depicted in Figs. 7(b)-7(e), or defined by claims 6-9, to produce a corresponding wobbling polarity and track area as claimed.

The foregoing discussion of the claimed invention and the distinctions between the claimed invention and the principal reference to Ogata et al. were discussed with the Examiners during the interview.

In summary, the art relied upon by the Examiner to reject the pending claims does not teach or suggest a recording medium with a judging area having the claimed land and wobble-wall construction that can reliably, and in real time, produce a correspondence between a wobble polarity and a track area.

Applicant notes that the priority claim is acknowledged and the certified copies of the priority documents received.

Applicant has filed on July 26, 2004 a Supplemental Information Disclosure Statement listing eleven new Japanese references that were cited against the corresponding patent application in Japan, together with a translated copy of the Official Action in Japan.

In view of the foregoing amendment and remarks, applicant urges that this application defines patentable subject matter over the art of record and is otherwise in condition for allowance.

Dated:

Respectfully submitted,

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